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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/114,335	07/13/1998	William M. Silver	C98-035	9099

23459 7590 03/28/2005

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EXAMINER

CHANG, JON CARLTON

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/114,335	SILVER ET AL.	
	Examiner	Art Unit	
	Jon Chang	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-35 is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 July 1998 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/17/00, 1/17/02</u> | 6) <input type="checkbox"/> Other: ____. |

Specification

1. The disclosure is objected to because of the following informalities:
 - a) Brief descriptions are needed for figures 5a-5b, 18a-18c, 21a-21c and 22a-22b.
 - b) On page 3, line 8, --to-- should be inserted between "due" and "the".
 - c) The statuses of the U.S. Patent Applications mentioned on pages 5, 7, 16, 17 and 18 should be updated as appropriate (abandoned or patented/Patent Number).
2. The abstract of the disclosure is objected to because it is too long. The abstract should be generally limited to a single paragraph within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. Correction is required. See MPEP § 608.01(b).

Appropriate correction is required.

Information Disclosure Statements

3. The non-patent literature documents listed in the Information Disclosure Statements filed November 17, 2000, and January 17, 2002, are either missing or have not been provided. The documents are not readily available to the Examiner, and therefore have not been considered. The Examiner suggests that these documents be submitted/re-submitted for consideration. It is noted that these Information Disclosure Statements are duplicates of each other.

Allowable Subject Matter

4. Claims 1-35 are allowed.

In claim 1, the limitation, "the model including a plurality of probes, each probe representing a relative position at which at least one test is performed in an image at a given pose, each such test contributing evidence that the pattern exists at the pose," along with, "comparing the model with the run-time image at each of a plurality of poses," and "computing a match score at each pose to provide a match score surface," in combination with the other elements of the claim, are neither disclosed nor suggested by the prior art of record. Claims 2-35 ultimately depend from claim 1.

References Cited

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,220,621 to Saitoh is considered the closest prior art with regard to the allowable subject matter. Saitoh, in column 2, lines 37-63 teaches: templates (i.e., models), edge points at which parameters to be used for performing generalized Hough Transform (this are likened to the probes in the instant application), cumulative values (essentially local maxima) which are compared to a threshold, and locating object where the cumulative values exceed the threshold. Saitoh does not disclose the aspect of poses as claimed.

U.S. Patent 5,471,541 to Burtzyk et al. discloses a method for determining 3D pose and location of an object by searching for a best match of range profile data with a model.

U.S. Patent 5,850,466 to Schott teaches eroding with probes, the probes being designed to detect certain shapes.

U.S. Patent 6,324,299 to Sarachik et al. teaches locating an object by defining geometric models and sub-models of an object and determining coarse candidate poses of the object.

U.S. Patent 6,466,923 to Young teaches constructing and using image feature probes for biomathematical pattern recognition.

U.S. Patent 6,658,145 to Silver et al. discloses fast high-accuracy multi-dimensional pattern inspection.

U.S. Patent 6,856,698 to Silver et al. discloses fast high-accuracy multi-dimensional pattern localization.

"Fast Optimal Pose Estimation for Matching in Two Dimensions" by Joseph teaches a method for searching a scene for the occurrence of a model, and estimates an optimal pose for the model.

Conclusion

6. This application is in condition for allowance except for the following formal matters:

The objections to the disclosure and abstract, noted above.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.


A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon Chang whose telephone number is (703)305-8439. The examiner can normally be reached on M-F 8:00 a.m.-6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703)308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jon Chang
Primary Examiner
Art Unit 2623

Application/Control Number: 09/114,335

Page 6

Art Unit: 2623

Jon Chang

March 21, 2005